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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/726,541	12/04/2003	Yuichi Osakabe	00862.023344	5941

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NEW YORK, NY 10112

EXAMINER

MATHEWS, ALAN A

ART UNIT	PAPER NUMBER
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2851

DATE MAILED: 03/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AL

Office Action Summary	Application No.	Applicant(s)	
	10/726,541	OSAKABE ET AL.	
	Examiner	Art Unit	
	Alan A. Mathews	2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 15-24 is/are rejected.
- 7) ☒ Claim(s) 14 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 December 2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/4/03 & 2/20/04</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Objections

1. Claim 1 is objected to because of the following informalities: In claim 1, line 10, "said projection optical" should apparently be "said projection optical system". Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. Claims 6 -9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. First, claim 6 recited on line 2 a "third detection system which detects a third substrate reference mark". But claim 6 depends on claim 1, and no second detection system and no second substrate reference mark has been recited. How can there be a third detection system when no second detection system has been recited? How can there be a third substrate reference mark when no second detection mark has been recited? Secondly, claim 8 similarly claims a fourth detection system and fourth substrate reference mark without claiming a second or third detection system and second and third substrate reference mark. Similarly, claim 20 recites a third detection system and third substrate reference mark without reciting a second detection system and a second substrate reference mark. Similarly, claim 23 recites a fourth detection system and a fourth substrate reference mark without reciting a third detection system and a third substrate reference mark.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-13 and 15- 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Murakami et al. (U. S. Patent No. 5,751,404). Murakami et al. discloses in figure 2 and column 9, lines 6-67, a scanning exposure apparatus for exposing a pattern of an original (mask) 1 through a projection optical system 2 onto a substrate (wafer) 3. Figures 2, 5 and 6, and column 9, lines 34-67, disclose a first detecting system including elements 7 and 101, which detects a first reference mark 60 corresponding to the substrate through the projection optical system 2 from an on-axis position on an optical axis of the projection optical system. It is noted that the expression “one of” only requires one of the two limitations that follow the expression. Column 9, lines 53-67, and column 10, lines 1-67, and column 11, lines 1-40, disclose an alignment system (see column 10, line 16, and column 11, line 18, in particular) which aligns the original (mask) and the substrate (wafer). With respect to claim 2, wafer reference plate 12 with the marks 60 and 61 is on wafer stage 5. With respect to claim 3, column 9, lines 49-52 states “An relative positional deviation of the marks 50 and 51 with respect to the mark 60 or 61 on the wafer reference plate 12 are observed photoelectrically through observation microscope 7. Resultant signals are process by a mark detecting means 101, and information about relative

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positional relationship is applied to a processing circuit 102". With respect to claim 4, column 12, lines 1-21, disclose a second detection system includes off-axis microscope 31, which detects a second substrate reference mark 55. With respect to claims 6 and 7, it is noted that the claims are vague as stated above. Interpreting the expressions "third detection system" and "third substrate reference mark" to simply mean another detection system different from the first detection system and another substrate reference mark different from the first substrate reference mark, off-axis microscope 31 and substrate mark 55 could be considered to be this other detection system and another substrate mark, since no second detection system and second substrate reference mark has been claimed in claim 6. With respect to claim 8, element 8 could be considered the fourth detection system and mark 40(a) could be considered the fourth substrate reference mark (see figures 2 and 5 and column 11, lines 43-49). With respect to claim 13, column 11, lines 52-58, and column 17, line 19, disclose calculating a rotational position. With respect to claims 22 and 23, column 6, lines 54-59, recites "Said first detecting means may use measurement light having a wavelength substantially the same as that of the exposure light. Said second detecting means may use measurement light having a wavelength substantially the same as that of the exposure light".

5. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Kawashima (U. S. Patent No. 6,023,320). Kawashima discloses in figure 1 and column 6, lines 1-67, a scanning exposure apparatus for exposing a substrate (wafer or second object) 3 to a pattern on an original (reticule or second object) 1. Figure 12 and column 11, lines 31-67, disclose a modification of the reflection surface plate 12 mounted on the substrate. Column 12, lines 22-

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39, disclose forming an image of the mark 1200a of the reflection surface plate 12 on the detecting means 103a. Drive control means 1000 brings the original and substrate into alignment.

Allowable Subject Matter

6. Claim 14 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims **and subject to correction of the objection to claim 1** recited above.

The reasons for the indicated allowability of the claims are as follows:

The prior art does not disclose or suggest an alignment system that calculates a deformation amount of the original based on the detection result of said first detection system in combination with all the other elements recited in the parent claims to dependent claim 14.

Conclusion

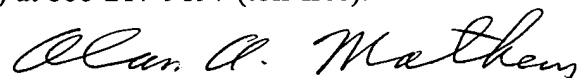
7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The patents cited in the PTO-1449 are cited for the same reasons they were cited in Applicant's IDS. The patent to Murakami et al. (U. S. Patent No. 5,920,378) is cited to show alignment systems 60a, 60b, 50a, and 50b, and a substrate reference mark FPa and FPb.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan A. Mathews whose telephone number is (571) 272-2123. The examiner can normally be reached on Monday through Friday from 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571) 272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Alan A. Mathews
Primary Examiner
Art Unit 2851

AM